

# PATENT ABSTRACTS OF JAPAN

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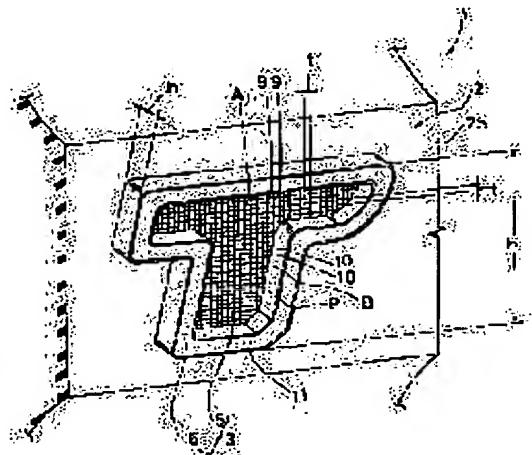
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 (22)Date of filing : **04.07.1991** (72)Inventor : **YAMASHITA BUNICHI**

**(54) PNEUMATIC TIRE****(57)Abstract:**

PURPOSE: To form a mark such as a letter symbol provided on a side wall in a nice-looking, and to improve the discriminating effect.

CONSTITUTION: On the outer surface 2S of a side wall 2, a marking area 5 to display a letter symbol and the like, and a bordering area 6 which consists of a white rubber to border the marking area 5 rising from the outer surface of the marking area 5 and the outer surface of the side wall 2 are provided. The outer surface of the marking area 5 has a mesh design in which one side minute grooves 9 lining up at constant intervals t and the other side minute grooves 10 are crossed each other. The intervals t are made larger than 0.01 times the length H in the radius direction of the tire of the bordering area 6, and smaller than 0.1 times, and the length H is made larger than 15mm and smaller than 60mm.

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] The indicator field which expresses a literal notation or a graphic form on the external surface of the sidewall section of a tire, While preparing the border field which borders this indicator field, and upheaves from the external surface of this indicator field, and the external surface of said sidewall section, and moreover consists of white rubber While forming the external surface of said indicator field in the mesh pattern with which while is located in a line at intervals of [ fixed / t ] this direction and which a rill and the rill of another side intersect The pneumatic tire with which the small deer also set said die-length H to 15mm or more and 60mm or less for said spacing t rather than size and 0.1 times from 0.01 times of die-length H between the tire radial rim of said border field, and a common-law marriage.

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]**

[0001]

[Industrial Application] This invention relates to the pneumatic tire which becomes the sidewall section of a tire from the White letter and which came up and formed the mark.

[0002]

[Description of the Prior Art] Such a mark a has heightened the discernment effectiveness by forming this whole mark a with white rubber by performing widely preparing the mark of a literal notation , a graphic form , etc. which are a trade name , a trademark , etc. , for example in sidewall section external surface , so that it may be shown in the former , for example , drawing 8 , and making it upheave from the sidewall section external surface b in a tire generally .

[0003]

[Problem(s) to be Solved by the Invention] However, by the conventional mark, although the mistake in color is made using white rubber, since it has the gloss as surrounding sidewall section external surface with the same whole mark external surface, the discernment effectiveness is insufficient, and, moreover, appearance is deficiently fallen to change.

[0004] This invention aims at offer of the pneumatic tire which can solve said trouble on the basis of forming in the border field which turns into an indicator field which has a mesh pattern from white rubber in said mark, and borders the profile.

[0005]

[Means for Solving the Problem] In order to attain said purpose, the pneumatic tire of this invention The indicator field which expresses a literal notation or a graphic form on the external surface of the sidewall section of a tire, While preparing the border field which borders this indicator field, and upheaves from the external surface of this indicator field, and the external surface of said sidewall section, and moreover consists of white rubber While forming the external surface of said indicator field in the mesh pattern with which while is located in a line at intervals of [ fixed / t ] this direction and which a rill and the rill of another side intersect The small deer is also setting said die-length H to 15mm or more and 60mm or less for said spacing t rather than size and 0.1 times from 0.01 times of die-length H between the tire radial rim of said border field, and a common-law marriage.

[0006]

[Function] Thus, the mark which borders with an indicator field and is constituted from a field makes the indicator field external surface of the inside the mesh pattern which made the rill cross mutually while it upheaves said border field from sidewall section external surface using white rubber and forms it.

[0007] Therefore, while said mark changes color between surrounding sidewall section external surface, it can make gloss greatly different and may improve the discernment effectiveness of this mark sharply.

[0008] And change can be given to the appearance of a mark, an appearance is raised and it is useful also to improvement in commodity value with the synergistic effect of each field.

[0009]

[Example] One example of this invention is explained based on a drawing below. Drawing 1 is the perspective view showing a part of sidewall section 2 of a pneumatic tire 1.

[0010] In drawing, this mark 3 borders a pneumatic tire 1 with the indicator field 5, and it is formed from a field 6 while equipping outside 2S of the sidewall section 2 with the mark 3 which is the alphabetic character of T by

the literal notation or the graphic form (it is henceforth called an alphabetic character etc.), and this example. [0011] Said indicator field 5 is an image field for displaying said alphabetic character etc., and as shown in drawing 1 and 2, while having a profile configuration suitable for said alphabetic character etc. and being allotted on outside 2S of said sidewall section 2, the mesh pattern P is formed in the external surface of this indicator field 5.

[0012] The mesh pattern P makes the shape of so-called grid which the straight-line-like rill 9 equips with the 2nd rill county B where the 1st rill county A and rill 10 which has the fixed spacing t in a tire circumferential direction, and is located in a line with it have the fixed spacing t in the direction at which said tire circumferential direction is crossed, for example, the direction which intersects perpendicularly, and are located in a line with it in this example.

[0013] As the \*\*\*\* rills 9 and 10 are expanded to drawing 3 and it is shown, the range of the include angles alpha and beta at which nothing and its side faces S1 and S2 make the shape of a cross section of V characters with a normal, respectively is 30 - 65 degrees, respectively. In addition, while being able to distribute light in the specific direction, being able to reflect, changing the gloss of the appearance a lot with a smooth side and getting by making these rills 9 and 10 into the shape of V character, the clearness of the field can be raised. In addition, if rills 9 and 10 are \*\* mutually, it carries out and they can form the include angles alpha and beta of said side faces S1 and S2, and also various cross-section configurations, such as the shape of U character, can be used for them, for example.

[0014] moreover, the height level location of the indicator field 5 to which indicator field 5 external surface is presenting the black which exposed black rubber like said sidewall section 2 external-surface 2S to, and the crowning of said rills 9 and 10 is connected is the same as that of sidewall section 2 external-surface 2S -- or -- this -- it has projected outside from outside 2S.

[0015] Moreover, said border field 6 has the wall 11 which surpasses the external surface of the outside 2S and the indicator field 5 of said sidewall section 2, and projects in the method of outside, and when this wall 11 is continuously extended along the profile edge of said indicator field 5, it borders the indicator field 5.

[0016] Moreover, when said base 11A exposes the both-sides side of base 11A which said wall 11 becomes from white rubber, and this base 11A by the outer edge including thin covering section 11B which consists of wrap black rubber, said wall 11 forms the border field 6 of the white which upheaves from the sidewall section 2.

[0017] Thus, according to the mesh pattern P of the indicator field 5, said mark 3 which bordered with the indicator field 5 and was formed in the field 6 can change the gloss a lot with the surrounding sidewall section 2, and raises the clearness. And since color has bordered the profile of this indicator field 5 by the white wall 11 which differed and upheaved, said mark 3 can be made to pull up more clearly and impressively, and the discernment effectiveness is heightened sharply, and appearance may be improved.

[0018] In addition, in order to demonstrate such discernment effectiveness with more highly and sufficient appearance, it is required for the magnitude of die-length [ between the tire radial rim of said border field 6 and a common-law marriage ] H, i.e., the tire radial of a mark 3, to be 15mm or more and 60mm or less, and the spacing t between rills is smallness from size and 0.1 times in 0.01 times of said die-length H again. In surpassing this range, said effectiveness cannot demonstrate effectively, especially die-length H tends to induce the crack damage on a crack etc. from 60mm to said border field 6 in connection with flexion deformity of a tire at the adult time. For the same reason, as for upheaval height h from sidewall section 2 external-surface 2S of said border field 6, it is desirable that it is 5mm or less, and, moreover, radius of curvature R forms the lower limit part of this side face for angle-of-inclination theta to the normal of the side face with radii 1mm or more 5 to 10 degrees.

[0019] in addition, such a mark 3 -- forming -- drawing 4 R> -- as shown in 4 and 5, \*\* arrival of the white rubber object 13 for wall 11 formation is carried out into the hollow M established in the sidewall rubber object 12 for sidewall section formation, and the laminating of the thin and black BINIA rubber sheet 15 is carried out to the front face. Furthermore, while forming a raw tire using this unified layered product 16, said \*\* arrival part is made to press the stamp metal mold 19 which borders with the heights 17 for indicator field 5 formation which are in agreement with pattern configurations, such as said alphabetic character, and has the crevice 18 for field 6 formation at the time of vulcanization shaping. After an appropriate time, buff processing is performed to the heights of the concave convex formed of press of this stamp metal mold 19, and said white rubber object

13 is exposed by deleting said BINIA rubber sheet 15.

[0020] In addition, as a mesh pattern, as are shown in drawing 4, and it can arrange at the include angle which can lean the array direction of each rills 9 and 10 to a tire circumferencial direction and is shown in drawing 5 R> 5, said mesh pattern may be formed by putting in order the rill which curves in the shape of radii in an include-angle pitch fixed one point as a core.

[0021]

[Effect of the Invention] Since [ which the pneumatic tire of this invention serves as an indicator field which has a mesh pattern from white rubber like the above statement, and borders the profile of an indicator field / which upheaved ] it borders and the mark is formed in the field, the color and the gloss of this mark can be changed with sufficient balance, clearness is raised, and the discernment effectiveness of a mark and the appearance of a tire may be improved sharply.

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[Translation done.]

**\* NOTICES \***

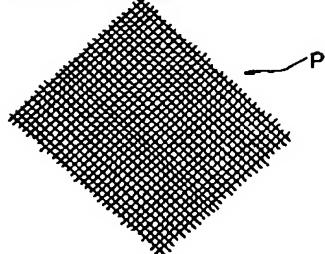
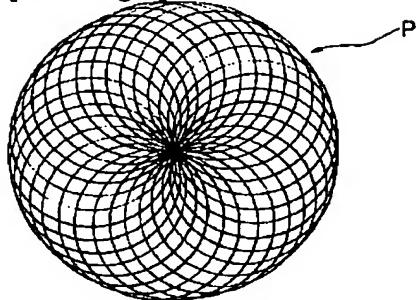
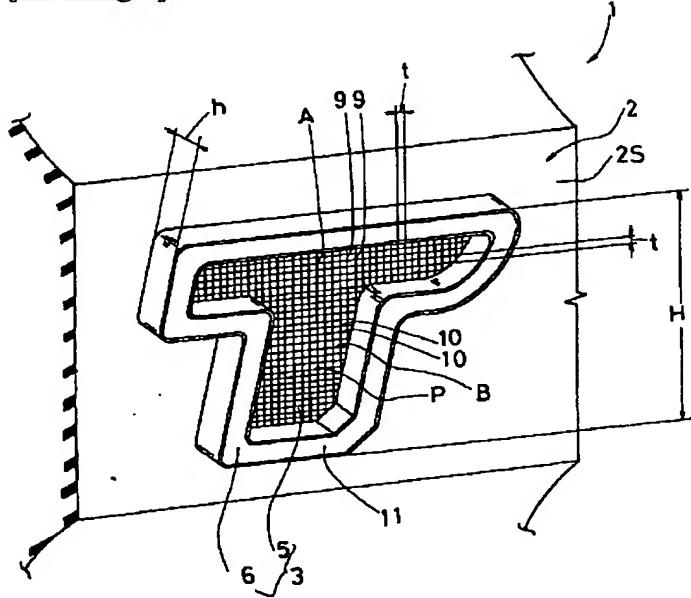
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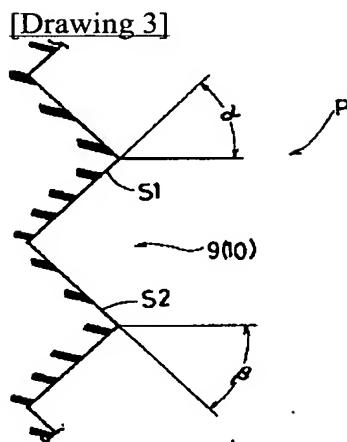
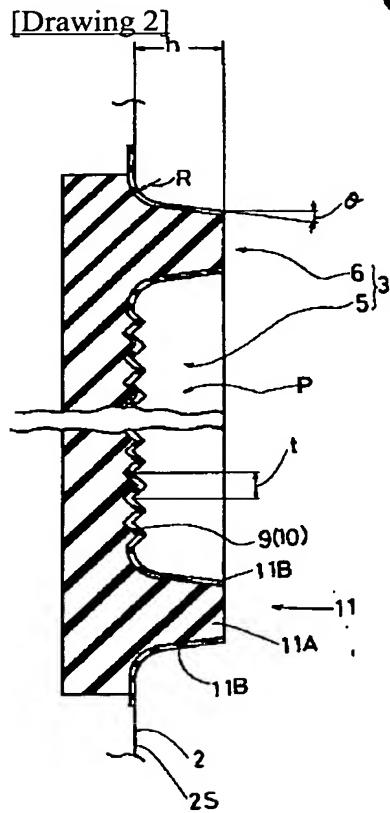
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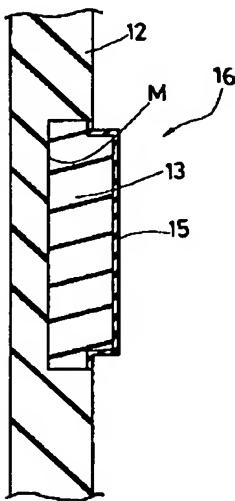
**DRAWINGS**

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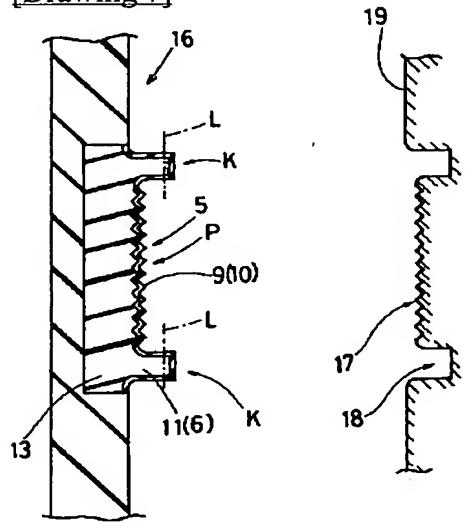
**[Drawing 4]****[Drawing 5]****[Drawing 1]**



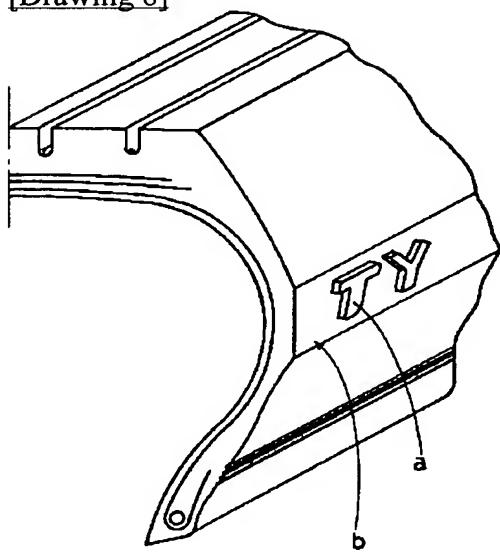
[Drawing 6]



[Drawing 7]



[Drawing 8]



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[Translation done.]

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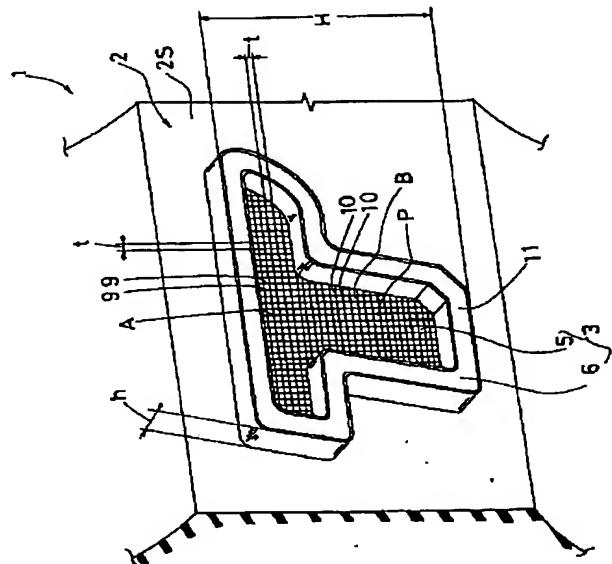
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(54)【発明の名称】 空気入りタイヤ

(57)【要約】

【目的】サイドウォール部に設ける文字記号等のマークを見映えよく形成しあつその識別効果を高める。

【構成】サイドウォール部2の外面2Sに、文字記号等を表す標識領域5と、この標識領域5を縁どりかつ標識領域5の外面及びサイドウォール部2の外面から隆起する白色ゴムからなる縁どり領域6とを具える。標識領域5の外面は、同方向かつ一定の間隔tで並ぶ一方の細溝9と、他方の細溝10とが交差するメッシュ模様を具える。前記間隔tは、前記縁どり領域6のタイヤ半径方向の長さHの0.01倍より大かつ0.1倍より小、しかも長さHを15mm以上かつ60mm以下とする。



## 【特許請求の範囲】

【請求項1】タイヤのサイドウォール部の外面に、文字記号もしくは图形を表出する標識領域と、この標識領域を縁どりかつ該標識領域の外面および前記サイドウォール部の外面から隆起ししかも白色ゴムからなる縁どり領域とを設けるとともに、前記標識領域の外面を、同方向かつ一定の間隔tで並ぶ一方の細溝と、他方の細溝とが交差するメッシュ模様に形成するとともに、前記間隔tを前記縁どり領域のタイヤ半径方向の外縁と内縁との間の長さHの0.01倍よりも大かつ0.1倍よりも小しかも前記長さHを15mm以上かつ60mm以下とした空気入りタイヤ。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明は、タイヤのサイドウォール部にホワイトレターからなる浮出しマークを形成した空気入りタイヤに関する。

## 【0002】

【従来の技術】一般に、タイヤにおいては、例えば商号、商標等である文字記号及び图形等のマークをサイドウォール部外面に設けることが広く行われており、又このようなマークaは、従来、例えば図8に示すように、該マークaの全体を白色ゴムで形成しがつサイドウォール部外面bから隆起させることによりその識別効果を高めている。

## 【0003】

【発明が解決しようとする課題】しかしながら従来のマークでは、白色ゴムを用い色彩を違えているとはいえ、マーク外面全体が周囲のサイドウォール部外面と同一の光沢を有するためその識別効果が不十分であり、しかも変化に乏しく見映えを低下している。

【0004】本発明は、前記マークを、メッシュ模様を有する標識領域と、白色ゴムからなりかつその輪郭を縁どる縁どり領域とで形成することを基本として、前記問題点を解決しうる空気入りタイヤの提供を目的としている。

## 【0005】

【課題を解決するための手段】前記目的を達成するためには、本発明の空気入りタイヤは、タイヤのサイドウォール部の外面に、文字記号もしくは图形を表出する標識領域と、この標識領域を縁どりかつ該標識領域の外面および前記サイドウォール部の外面から隆起ししかも白色ゴムからなる縁どり領域とを設けるとともに、前記標識領域の外面を、同方向かつ一定の間隔tで並ぶ一方の細溝と、他方の細溝とが交差するメッシュ模様に形成するとともに、前記間隔tを前記縁どり領域のタイヤ半径方向の外縁と内縁との間の長さHの0.01倍よりも大かつ0.1倍よりも小しかも前記長さHを15mm以上かつ60mm以下としている。

## 【0006】

【作用】このように、標識領域と縁どり領域とで構成するマークは、前記縁どり領域を、白色ゴムを用いてサイドウォール部外面から隆起させて形成するとともに、その内側の標識領域外面を、細溝を互いに交差させたメッシュ模様としている。

【0007】従って前記マークは、周囲のサイドウォール部外面との間で色彩を変化させる一方、光沢を大きく相違させることができ、該マークの識別効果を大巾に向かう。

10 【0008】しかも各領域の相乗効果によってマークの見映えに変化を与えることができ、外観を高め商品価値の向上にも役立つ。

## 【0009】

【実施例】以下本発明の一実施例を図面に基づき説明する。図1は、空気入りタイヤ1のサイドウォール部2の一部を示す斜視図である。

【0010】図において、空気入りタイヤ1は、サイドウォール部2の外面2Sに、文字記号もしくは图形（以後文字等という）、本例では例えばTの文字であるマーク3を具えるとともに、該マーク3は、標識領域5と縁どり領域6とから形成される。

【0011】前記標識領域5は、前記文字等を表示するためのイメージ領域であって、図1、2に示すように、前記文字等に合う輪郭形状を有して、前記サイドウォール部2の外面2S上に配されるとともに、該標識領域5の外面にはメッシュ模様Pが形成される。

【0012】メッシュ模様Pは、本例では、直線状の細溝9が例えばタイヤ円周方向に一定の間隔tを有して並ぶ第1の細溝群Aと、細溝10が前記タイヤ円周方向と30 交わる方向、例えれば直交する方向に一定の間隔tを有して並ぶ第2の細溝群Bとを具えるいわゆる格子状をなす。

【0013】又各細溝9、10は、図3に拡大して示すように、夫々断面V字状をなし、その側面S1、S2が法線となす角度α、βは夫々30°～65度の範囲である。なお該細溝9、10をV字状とすることにより、光を特定の方向に分散して反射することができ、その見かけの光沢を平滑面と大きく変化させるとともに、その領域の鮮明さを高めうる。なお細溝9、10は、前記側面S1、S2の角度α、βを互いに異ならして形成する他、例えればU字状等種々の断面形状を採用できる。

【0014】又標識領域5外面は、前記サイドウォール部2外面2Sと同様に黒色ゴムを露出した黒色を呈しており、又前記細溝9、10の頂部を結ぶ標識領域5の高さレベル位置は、サイドウォール部2外面2Sと同一もしくは該外面2Sから外に突出している。

【0015】又前記縁どり領域6は、前記サイドウォール部2の外面2S及び標識領域5の外面をこえて外方に突出する壁部11を有し、該壁部11が前記標識領域5の輪郭線に沿って連続してのびることにより、標識領域

5を縁どりする。

【0016】又前記壁部11は、白色ゴムからなる基部11Aと、該基部11Aの両側面を覆う黒色ゴムからなる薄厚の被覆部11Bとを含み、前記基部11Aがその外端で露出することにより、前記壁部11はサイドウォール部2から隆起する白色の縁どり領域6を形成する。

【0017】このように標識領域5と縁どり領域6とで形成した前記マーク3は、標識領域5のメッシュ模様Pによってその光沢を周囲のサイドウォール部2と大きく変化させることができその鮮明さを高める。しかも該標識領域5の輪郭を、色彩が異なりかつ隆起した白色の壁部11によって縁どりしているため、前記マーク3をより明確にかつ印象的にひきたたせることができ識別効果を大巾に高めかつ見映えを向上しする。

【0018】なおこのような識別効果をより高くかつ見映えよく発揮させるためには、前記縁どり領域6のタイヤ半径方向の外縁と内縁との間の長さH、すなわちマーク3のタイヤ半径方向の大きさが15mm以上かつ60mm以下であることが必要であり又細溝間の間隔tは前記長さHの0.01倍よりも大かつ0.1倍よりも小である。かかる範囲をこえる場合には、前記効果が有効に發揮できず、特に長さHが60mmより大の時、タイヤの屈曲変形に伴い前記縁どり領域6にクラック等の亀裂損傷を誘発しやすい。又同様の理由により、前記縁どり領域6のサイドウォール部2外縁2Sからの隆起高さhは5mm以下であることが好ましく、又その側面の法線に対する傾き角θは5~10度しかも該側面の下端部分は曲率半径Rが1mm以上の円弧で形成する。

【0019】なおこのようなマーク3を形成するには図4、5に示すように、サイドウォール部形成用のサイドウォールゴム体12に設ける凹所M内に、壁部11形成用の白色ゴム体13を埋着し、かつその表面に薄厚かつ黒色のビニアゴムシート15を積層する。さらに、この一体化した積層体16を用いて生タイヤを形成するとともに、加硫成形時、前記文字等のパターン形状と一致する標識領域5形成用の凸部17と縁どり領域6形成用の凹部18とを有する刻印金型19を、前記埋着部分に押

圧させる。しかる後、該刻印金型19の押圧によって形成された凹凸面の凸部にバフ処理を施し、前記ビニアゴムシート15を削除することにより前記白色ゴム体13を露出させる。

【0020】なおメッシュ模様としては、図4に示すごとく、各細溝9、10の配列方向をタイヤ円周方向に対して傾けるなど自在の角度で配列することができ、又図5に示すごとく、円弧状に湾曲する細溝を中心として一定の角度ピッチで並べることにより前記メッシュ模様を形成してもよい。

【0021】

【発明の効果】叙上の如く本発明の空気入りタイヤは、メッシュ模様を有する標識領域と、白色ゴムからなりかつ標識領域の輪郭を縁どる隆起した縁どり領域とでマークを形成しているため、該マークの色彩及び光沢をバランスよく変化させることができ、鮮明さを高めマークの識別効果とタイヤの見映えとを大巾に向上しする。

【図面の簡単な説明】

【図1】本発明の一実施例である空気入りタイヤのサイドウォール部の一部をマークとともに示す斜視図である。

【図2】図1に示すマークの断面図である。

【図3】細溝の一実施例を示す断面図である。

【図4】メッシュ模様の他の実施例を略示するパターン図である。

【図5】メッシュ模様のさらに他の実施例を略示するパターン図である。

【図6】マークの形成方法を説明する略図である。

【図7】マークの形成方法を説明する略図である。

【図8】従来技術を説明するサイドウォール部の部分正面図である。

【符号の説明】

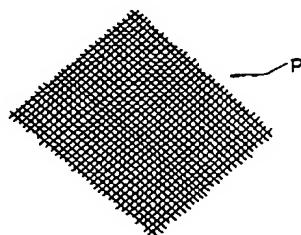
2 サイドウォール部

5 標識領域

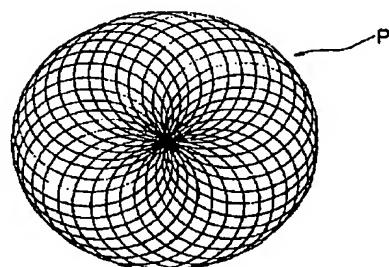
6 縁どり領域

9、10 細溝

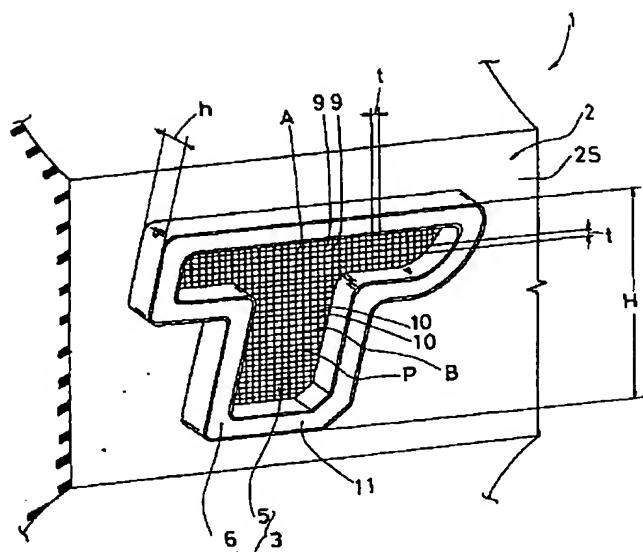
【図4】



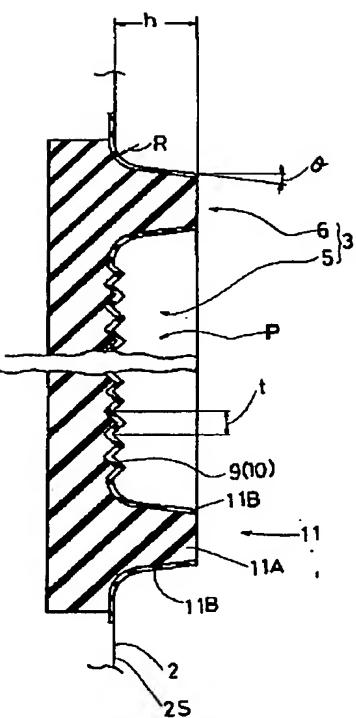
【図5】



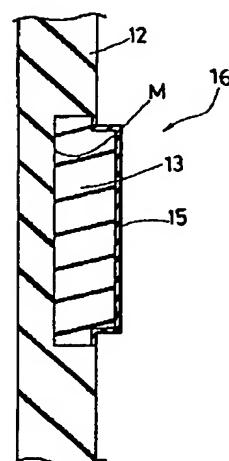
【図1】



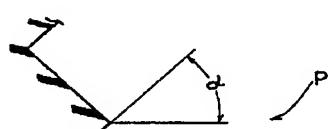
【図2】



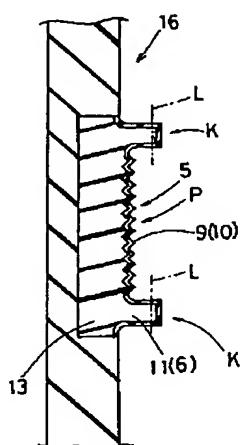
【図6】



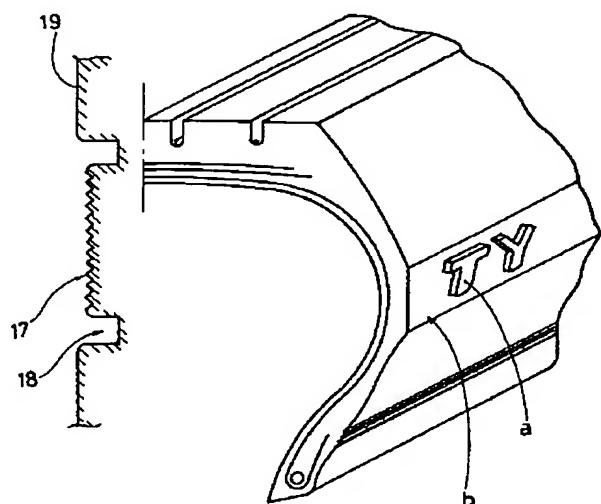
【図3】



【図7】



【図8】



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